

BOAT
Name SWAN 45 ONE DESIGN Sail Nr SW45 1234

GPH
532.1

HULL			
Length Overall	13.829m	Maximum Beam	3.888m
Displacement	9,850kg	Draft	2.834m
IMS Reg. Division	Cruiser/Racer	Dynamic Allowance	0.000%
Fwd Accommodation	Yes	Hull Construction	Cored
Crew Arm Extension		Carbon Rudder	Yes
IMSL	12.631m	VCGD	-0.293m
RL	11.766m	VCGM	-0.348m
LSM0	12.420m	Displacement/Length ratio	5.1413
Sink	26.78kg/mm	WS	36.62m ²



World Leader in Rating Technology

2019 (Test)
ORC International
One Design Certificate

GENERAL
Class SWAN 45 OD
Designer FRERS
Builder NAUTOR
Series 11/2001
Age 11/2001
Age Allowance 0.487%
Offset File swan45.od - 15/01/2019 16:55:25
Measurement by - 26/04/2013

Rating Office

SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	519.7			578.6		
Time on Time	1.1546			1.1667		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	596.1	475.9	427.3	769.1	582.8	509.2
Time on Time	1.1323	1.4184	1.5797	0.8776	1.1582	1.3257

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	845.3	706.3	642.2	615.6	602.3	590.7	578.7
52°	559.8	478.2	449.5	439.3	434.0	430.9	422.8
60°	530.7	462.0	438.6	428.4	422.8	419.4	411.4
75°	508.4	451.5	429.7	415.9	405.9	399.8	393.0
90°	511.6	451.7	428.0	411.5	396.5	383.5	367.7
110°	533.4	452.4	422.6	404.4	391.8	379.5	357.9
120°	550.7	460.2	426.8	403.9	381.4	366.3	343.6
135°	614.9	500.0	445.6	420.3	397.5	373.4	325.9
150°	732.6	588.2	499.0	448.7	423.2	401.7	356.6
Run VMG	845.9	679.2	576.2	512.1	470.0	437.0	394.3

Certificate
Number SWAN45
ORC Ref N/A
Issued On 15/01/2019
VPP Ver. 2019 1.01
Invalid for Racing

Crew Weight
Default 938kg
Maximum 950kg
Minimum* 713kg
<i>*when applied by the NoR and SI</i>
Non Manual Pwr No

Special Scoring	
ToD	ToT
Non Spin GPH 558.5	1.0743
Non Spin OSN 546.2	1.0984

Selected Courses							
Windward / Leeward	845.6	692.7	609.2	563.8	536.1	513.8	486.5
Circular Random	720.3	587.1	517.2	477.1	452.1	434.8	410.4
Coastal / Long Distance	845.6	652.3	551.8	494.8	463.1	436.7	395.2
Non Spinnaker	767.8	620.9	542.2	496.1	467.2	447.6	421.4

Sails Limitations	
Headsails 7	Spinnakers 5

Velocity Prediction in Knots for True Wind Speeds							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	41.8°	40.4°	39.1°	37.7°	37.0°	36.3°	36.3°
Beat VMG	4.26	5.10	5.61	5.85	5.98	6.09	6.22
52°	6.43	7.53	8.01	8.19	8.29	8.35	8.51
60°	6.78	7.79	8.21	8.40	8.52	8.58	8.75
75°	7.08	7.97	8.38	8.66	8.87	9.01	9.16
90°	7.04	7.97	8.41	8.75	9.08	9.39	9.79
110°	6.75	7.96	8.52	8.90	9.19	9.49	10.06
120°	6.54	7.82	8.43	8.91	9.44	9.83	10.48
135°	5.85	7.20	8.08	8.57	9.06	9.64	11.04
150°	4.91	6.12	7.21	8.02	8.51	8.96	10.10
Run VMG	4.26	5.30	6.25	7.03	7.66	8.24	9.13
Gybe Angles	142.8°	146.0°	149.5°	155.6°	167.1°	180.0°	180.0°

Class Division Length
CDL = 12.199

Storm Sails Areas	
Heavy Weather Jib 48.01	Storm Jib (JL=12.26) 17.78
Storm Trysail 21.75	

Owner
I certify that I understand my responsibilities under ORC Rules and Regulations
Signature

BOAT	
Name SWAN 45 ONE	Sail Nr SW45 1234
File Swan45	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS		
Inclining Test Current Inclining		
Flotation date 26/04/2013		SG 1.0230
FFM 1.489	FF 1.490	SFFP 0.295
FAM 1.188	FA 1.189	SAFP 13.301
W1 103.0	PD1 427.0	WD 14.100
W2 103.0	PD2 427.0	GSA 1.0
W3 103.0	PD3 427.0	RSA 1.0
W4 103.0	PD4 427.0	PLM 9000.0
LCF from stem on CL / on sheer		7.686 / 7.918
Maximum beam station from stem		8.935
RM Measured		267.8kg-m
RM Default		271.8kg-m
Limit of positive stability / Stab.Index		135.8° / 142.7
Freeboard at mast at 5.435		1.267



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2019

IMS Measurement Certificate

RIG				
Forestay Tension Aft	Spreaders 2			
Inner Stay None Fitted	Runners 0			
Carbon Mast Yes	Jumper Struts None			
Taper Hollows No	Jib Furler No			
Fiber Rigging No	Main Furler No			
Lenticular Rigging No	Without Backstay No			
Articulated Bowsprit No				
P 18.660	E 6.660	MDT1 0.133	MW 0.260	
IG 18.735	J 5.400	MDL1 0.272	GO 0.295	
ISP 20.765	SFJ 0.035	MDT2 0.106	BD 0.303	
BAS 1.860	SPL 5.440	MDL2 0.142	MWT 285.00	
FSP 0.070	TPS	TL 1.500	MCG 6.800	

Certificate

Number **SWAN45**

ORC Ref **N/A**

Issued On **15/01/2019**

VPP Ver. **2019 1.01**

Invalid for Racing

MIZZEN RIG AND SAILS	
N/A	

PROPELLER		
Installation Strut	PRD 0.425	
Type Folding 2 blades	PBW 0.108	
Twin Screw No	PIPA 0.0033	
ST1 0.048	ST3 0.170	ST5 0.330
ST2 0.170	ST4 0.098	EDL 2.770

COMMENTS	
VALID ONLY IN CONJUNCTION WITH SWAN 45 CLASS CERTIFICATE	

MOVABLE BALLAST	
N/A	

CENTERBOARD	
N/A	

SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0.270	1.67	2.80	4.53	5.70	77.26	79.37	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL				
	18.70	18.70	18.70	9.85	9.80	153.34		SL · (SFL + 4·SHW) / 6	
Asymmetric	SLU	SLE	SL	SHW	SFL				
	18.74	18.74	18.74	9.86	9.87	154.01		AS · (SFL + 4·SHW) / 6	

HEADSAILS												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
HHB	HUW	HTW	HHW	HQW	HLP	HLU	Area	Btn	Fly	Meas.Date	Material	Comment
0.15	0.92	1.62	2.97	4.40	5.76	19.00	56.62	Y				ONE DESIGN

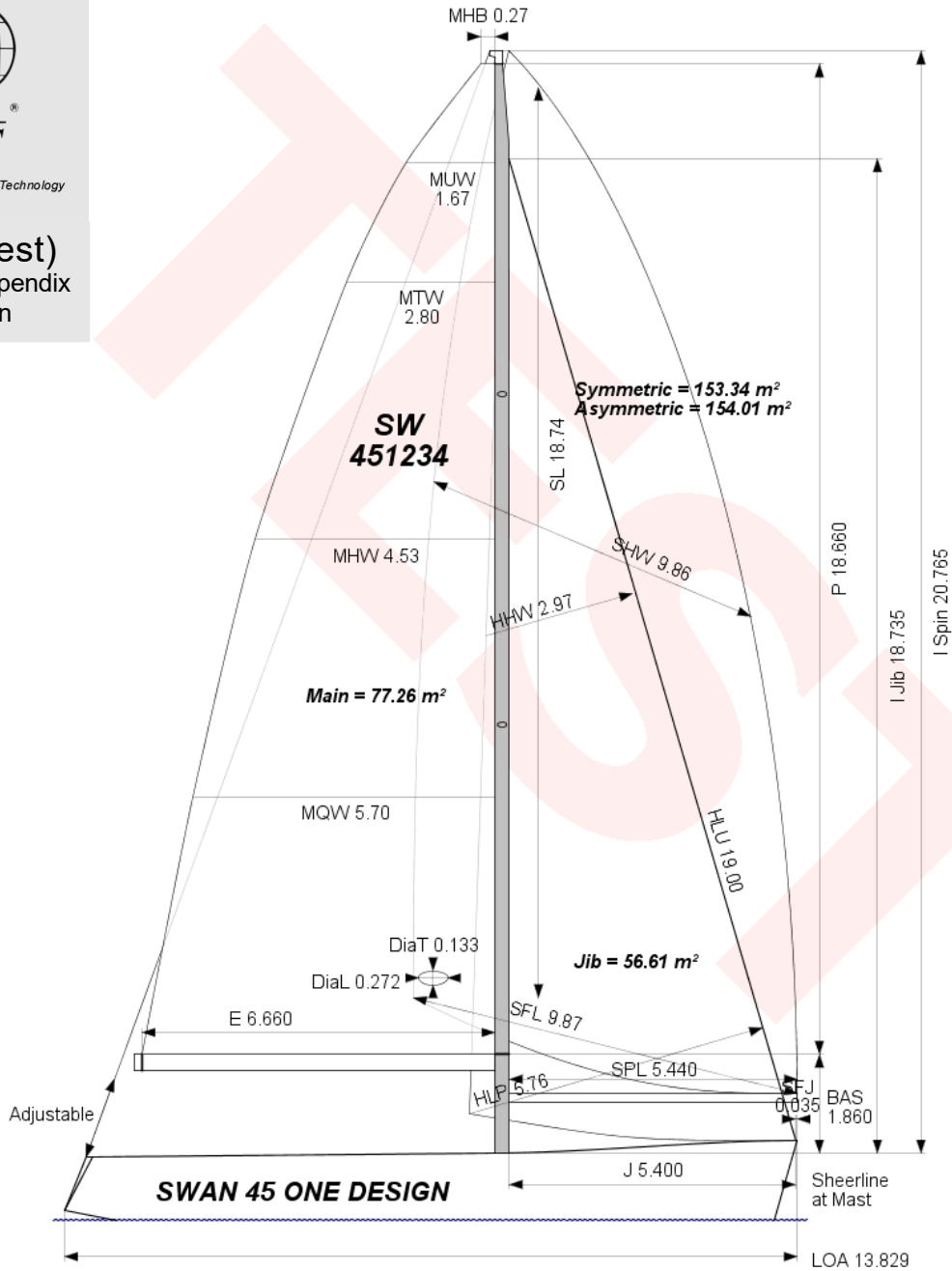
MEASUREMENT INVENTORY				
Measurer				
Date				
Comment				
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>
<i>Id</i>	<i>Item</i>	<i>Weight Description</i>		

MEASUREMENT INVENTORY				
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>



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2019 (Test)
Certificate Appendix
Sail Plan



SAILS INVENTORY

MAINSAIL (1)																
Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
ORC	0.27	1.67	2.80	4.53	5.70	77.27	ACC. CLASS				ONE DESIGN					
HEADSAILS (1)																
Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
ORC	0.15	0.92	1.62	2.97	4.40	5.76	19.00	107%	56.62	Y		ACC.				ONE DESIGN
SYMMETRIC SPINNAKERS (1)																
Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
ORC	18.70	18.70	18.70	9.85	9.80	153.34	ACC. CLASS				ONE DESIGN					
ASYMMETRIC SPINNAKERS (1)																
Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment				
ORC	18.74	18.74	18.74	9.86	9.87	154.02	asym	ACC. CLASS				ONE DESIGN				